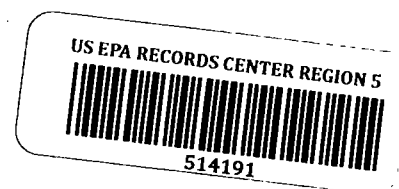


BRIEFING PAPER

REILLY TAR EPIDEMIOLOGY STUDY



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Reilly Tar is an NPL site located in Saint Louis Park, Minnesota, a city adjacent to Minneapolis. Reilly operated a coal tar distillation and a wood preserving operation at the site from 1917 to 1972. Originally the city was sparsely populated but eventually grew to surround the site. In 1932 the city developed its own water supply after Minneapolis said that it would no longer supply St. Louis Park. A well was drilled in the principal aquifer (there are numerous usable aquifers), the Prairie du Chien, but had to be closed within the first few weeks of use because of a strong coal tar taste. The well is about one mile downgradient of the Reilly site which was thought to be the source of the contamination. No enforcement was taken by the state or local governments at that time.

The state initiated enforcement efforts in the 1960's to prevent further surface discharges of coal tar oil. The site became a public nuisance due to its strong coal tar odor. The city was eventually able to purchase the Reilly site and develop it as a park and a condominium complex. The city, however, signed a hold-harmless agreement with Reilly over the objections of the state. This has effectively stymied the state's case against Reilly for the surface water and the rediscovered ground water contamination.

In 1978 sophisticated analytical techniques were used to test the city's drinking water, and it was found to be contaminated with coal tar substances believed to have originated from the Reilly site. Four wells were closed. Subsequently additional city wells and one in Hopkins, a neighboring community, were closed due to coal tar contamination. Several contractor and USGS studies verified that the likely source of contamination was the Reilly site and found that the contamination was quite extensive. Several usable aquifers were found to be contaminated and a substantial pool of coal tar which exists beneath a swamp just offsite may be a continuing source of contamination to deeper aquifers. The federal government filed a civil suit under RCRA §7003 in September 1980. Trial is scheduled for Fall 1984.

A Master's degree student at the University of Minnesota (UM) used data from the Third National Cancer Survey (1969-1971) to compare the suburb of St. Louis Park with the nearby suburbs of Edina and Richfield and with the Minneapolis-St. Paul metropolitan area with respect to cancer incidence. Females in St. Louis Park were found to have significant excesses of cancer at all sites, breast cancer and gastrointestinal cancer. The study by the Master's degree student was a preliminary study to the problem caused by Reilly, however, and did not demonstrate that there was any association between the ground water contamination and the excess cancer incidence. A followup study by the Minnesota Department of Health (MDH) of demographic variables in St. Louis Park which might have influenced the risk of

breast cancer in St. Louis Park could be explained by the Master's student had recommended that a breast cancer case-control by variables such as the relatively high proportion of Jewish population in St. Louis Park (20 percent). Jews are thought to be at a greater risk of breast cancer than the general population. This study is of limited utility for several reasons, the primary reason being that the demographic variables were not studied in relation to the variables in question, that is, the contaminated drinking water. The original study by the Master's student had recommended that a breast cancer case-control study be undertaken, but this was never done.

The University of Minnesota Department of Epidemiology has tried for state and federal funding to conduct further epidemiologic investigation. The state does not have the money and the EPA office that was to fund the study (ORD-Cincinnati) was abolished. When the EPA office was reviewing the proposal they interviewed MDH employees who alleged that they were removed from the study when they voiced concerns that the study was inadequate and that there was a problem in St. Louis Park. There has been sporadic but strong public concern for the possible health danger.

The OWPE litigation team member has advised the team for two years that a followup epidemiology study be conducted for several reasons.

- Reilly might use the epidemiology study conducted by the state as a defense stating that there is no problem with regard to the contaminated water and that the elevated breast cancer risk could be attributed to demographic factors (20 percent of the city is Jewish). The government could use a well conducted study in rebuttal.
- A complete remedy to the contaminated aquifers and the swamp could possibly cost over \$100 million. A court would be unlikely to award this amount without substantial evidence of public harm. The real issue is not whether we win the case (we have a very strong case and a sympathetic judge), but the degree of relief we will win.
- The people of St. Louis Park deserve at least a partial answer to their concerns.
- Many of the NPL sites involve coal tar pollutants. Risk assessments focus on only one coal tar constituent, benzo-a-pyrene (BaP), which is typically found (or not found) at lower concentrations than the other coal tar constituents. Since it is known that other coal tar constituents can greatly enhance the carcinogenicity of BaP, a risk assessment using BaP alone can seriously underestimate the potential harm. At the present time there is no method to quantitate the synergistic effects of the other constituents of coal tar. A preliminary assessment of the risk to St. Louis Park showed that there is expected to be less than one additional cancer per million due to BaP if everyone in

St. Louis Park drank from the most contaminated well. The population of St. Louis Park is less than 50,000 and no additional cancers would be expected to be seen based on this model. A well conducted study here could significantly advance our decisions on other such sites.

As mentioned, the study could not be funded by ORD. When OWPE asked for a risk analysis and expert testimony from the Carcinogen Assessment Group (CAG), Herman Gibb of CAG inquired if he could conduct the study for his PhD project with the Epidemiology Department of The Johns Hopkins University. He briefed the federal and state case attorneys on the study in Minneapolis last summer, and their concern was that the study not be controlled by any enforcement offices. That is, the study should be an independent study to minimize the impact if the results are either inconclusive or show that there is no increase in cancer incidence.

The proposed study would cost approximately \$50,000. It is proposed that the Fund give the money to the Center for Disease Control (CDC) who will then provide funding to UM. CDC is currently reviewing the study methodology. UM will then work with Johns Hopkins and Herman Gibb. The proposed study will determine if there is an increased risk of female breast cancer resulting from drinking water from the contaminated wells for the years 1978-1983 in St. Louis Park by a case control method. The Minnesota Department of Health will supply a small amount of incremental funds to "piggy back" the study to include gastrointestinal cancer.

The case attorneys are concerned that they do not know what the results of the study would be and have not, until now, objected to the study. The past epidemiological study showed that there is a risk, but could not relate it to the drinking water. The literature states that coal tar constituents are carcinogenic (skin cancer) and suggests that they could cause breast and other internal cancers. We have every reason to believe that the proposed study will confirm the results of the previous study and perhaps even tie the problem to the drinking water.

There are possible public concerns if the study is not conducted. This could arise either from UM who has been seeking funds for two years from the federal government or from citizen activists who have made claims that their neighbors at the Reilly site have had a high incidence of cancer and that the state and federal governments have not shown adequate concern to determine if a problem exists.